



UNITED STATES DEPARTMENT OF COMMERCE  
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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/183,594 01/19/94 BIANCO

J IV0001  
EXAMINER

ZANELLI, M

ART UNIT PAPER NUMBER

23M1/0906

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2304  
DATE MAILED:

09/06/94

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on \_\_\_\_\_ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |                                                                                               |                                                                                              |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892.       | 2. <input checked="" type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. (8 sheets) | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.                  |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.           | 6. <input type="checkbox"/> _____                                                            |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-43 are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1-43 are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☒ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

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**Part III DETAILED ACTION**

1. This application has been examined. Claims 1-43 are pending.
2. The prior art submitted on April 19, 1994 has been considered. Note that the "Popular Mechanics", Page one, (December 1993) reference is identical to page 35 of the Freeman reference. Hence only the Freeman reference has been initialed.
3. The Abstract of the Disclosure is objected to because it contains legal phraseology. Correction is required. See M.P.E.P. § 608.01(b).
4. The drawings are objected to because:
  - A. Each and every element of apparatus claim 35 are not shown in the drawings as required by 37 CFR § 1.83(a).
  - B. Figure 9 does not show a label "802" as referred to in the specification.Correction is required.
5. A proposed drawing correction must be provided with applicant's next response.
6. Claim 11 is rejected under 35 U.S.C. § 112, first paragraph, as the disclosure is enabling only for claims limited to determining location of the portable system based on a user selected golf course or a signal from the club house. See M.P.E.P. §§ 706.03(n) and 706.03(z).

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A. Claim 11 recites "means for processing said position indicative signals to *automatically determine which particular golf course a golfer has selected to play*". Page 9, first paragraph, of the specification states that "the player can enter a numerical code which designates the particular golf course" or alternatively "the golfer can change memory the module" [sic] or "a signal from the club house that automatically sets the appropriate course selection code". None of the disclosed embodiments include automatically determining the particular course played on using the "position indicative signals" which are obtained from GPS satellites (base claim 2). Thus the invention as claimed is not supported by the disclosure as filed.

7. It is noted that claims 36 and 43 are essentially identical in scope and wording. If at some later point in prosecution one of these claims is indicated as allowable, the other claim will be rejected as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

8. Claims 3-5 and 9-43 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. As per claim 3, at lines 2-3 the claim recites "said GPS master unit ... includes:" and then recites elements A,

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B and C. However, element C is not part of the master unit, but rather part of the position interface electronics contained in the at least one mobile interface unit.

B. As per claim 4, the phrase "is adaptable for" does not describe the invention in a clear, concise manner. See **In re Hutchinson**, 69 USPQ 138. Also at line 8 insert --golf-- before "cart" to provide proper antecedence.

C. As per claim 5, at line 2 the invention should be recited for what it is or does, not its capabilities.

D. As per claim 10, at line 3 insert --data-- before "processor" to provide proper antecedence.

E. As per claim 11, the claim is unclear as to how the position indicating signals are used to automatically determine which golf course is being played on.

F. As per claim 19, the claim is confusing as recited.

G. As per claim 22, "said field position" should be --said field location" to agree with terminology used in claim 1.

H. As per claim 36, the claim should clearly recite the structure of the apparatus, not its arrangements. At line 7 insert --first-- before "location" to provide proper antecedence.

I. As per claim 38, delete "display" since this term is redundant (LCD = Liquid Crystal Display).

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J. As per claim 39, at line 3, note comments above for claim 36. Also at line 4 insert --respect to-- after "with" to improve clarity.

K. As per claim 42, at line 3, note comments above for claim 4.

L. As per claim 43, at line 2, note comments above for claim 36.

M. All claims depending from a rejected base claim are also rejected as containing the same deficiencies.

9. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

11. Claims 1, 2, 6-38 and 40-43, as best interpreted given the 112/2 deficiencies noted above, are rejected under 35 U.S.C.

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\$ 103 as being unpatentable over Barber (5,245,537) in view of Germain (5,319,548).

A. As per claims 1, 2, 36 and 43, Barber disclose a portable golf distance tracking device as essentially shown in Figures 1, 4 and 6. The device includes a memory (16) for storing golf course geometrical and topographical data, means (12) for providing position indicating signals, a data processor (14) connected to the memory (16) and position indicating means (12) for determining the position of the device on the golf course relative to a reference coordinate system and a player interface (18,20) for data input and visual display of various golf parameters. As described in column 2, line 51 to column 3, line 5, the device can compute the distance of the golfer from any significant point on the golf course. The claimed invention differs from Barber in that the position indicating signals are received externally to the device rather than generated by internal sensing means. The external source is identified in claims 36 and 43 as GPS satellite signals.

B. Germain discloses an interactive golf game information system wherein one embodiment of the disclosed invention uses hand held data recording devices which determine the position of the device on the golf course using GPS satellite data (see col. 14, lines 23-55). The device

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includes means for entering data as well as producing a graphical display of the golf course (note Figure 4). Thus the reference suggests an alternative means of providing position indicating signals such that ones position on the golf course can be determined.

C. It would have been obvious to one of ordinary skill in the art, at the time of invention, to alternatively substitute the position indicating means of Germain, i.e. GPS, for the position indicating means of Barber because both means would have provided the necessary position data wherein the GPS position data would have been more accurate and less dependent on reference landmarks to initially establish the reference coordinate system as required by Barber.

D. With regards to claims 6, 7, 9-15, 23-32, 37 and 40-42, both Barber (Fig. 4 and 6) and Germain (col. 14, line 27-31 and Figure 4) disclose providing a keyboard means and a display means for entering, storing and displaying various course and player performance parameters such as the name of the golf course, hole numbers, distance to various landmarks from the current ball/player position, club selection information, number of putts per hole, par for a hole, handicap info, penalties, additional player info, parameter totals, etc..

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E. With regards to claims 16-22 and 38, Barber suggests that a LCD is utilized based on the dimensions of the display given as well as the suggestion that the device is similar in construction to a lap top computer (see col. 5, lines 4-18). Germain further suggests using a display which is capable of generating the graphics shown in Figure 4 (see col. 14, lines 25-27). As shown in Figures 6 and 7 of Barber and Figure 4 of Germain, the displays include both graphical course and hole information as well as textual data. The information/data includes flag position, various types of landmarks, distances between current position and points located on the course, etc..

D. With regards to claims 8 and 9, both references suggest various types of means for entering data (keypad, track ball, light pen, etc.). One of ordinary skill in the art would have been readily able to substitute other well-known means of inputting data into a data processor, such as via voice activation means. One of ordinary skill in the art would have been motivated to utilize voice activation input because golfers would have been able to enter data while proceeding to the next hole thus reducing back-up on the course.

E. As per claims 33-35, both references provide the capability of being able to interface with a central



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computer to transfer information to/from the portable device (see Barber Fig. 8 and Germain col. 14, lines 35-41).

12. Claim 5, as best interpreted given the 112/2 deficiencies noted above, is rejected under 35 U.S.C. § 103 as being unpatentable over Barber (5,245,537) in view of Germain (5,319,548) and Remedio et al. (4,910,677).

A. Barber and Germain are applied as above. The claimed invention differs from the applied references in that a replaceable memory is used to store information for different playing fields. Barber discloses receiving the topographical data via downloading from a central computer whereas Germain uses a replaceable memory card for storing player performance parameters.

B. Remedio et al. disclose a golf scoring device (Fig. 2a) wherein a replaceable memory module (53) contains information for a particular course. The transferrable memory module allows one to use the device at different golf courses (see col. 2, lines 35-66).

C. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to provide the course information on a removable memory module, as suggested by Remedio et al. above, because it would have eliminated the need to download the information directly

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from a central computer as well as allow one to easily reconfigure the device for different golf courses.

13. Claims 3 and 39, as best interpreted given the 112/2 deficiencies noted above, are rejected under 35 U.S.C. § 103 as being unpatentable over Barber (5,245,537) in view of Germain (5,319,548) and Harris et al. (publ.)

A. Barber and Germain are applied as above. The claimed invention differs from the references as combined in that differential GPS is utilized to provide correction signals to the portable tracking device via wireless transmission.

B. It was well known in the art at the time of applicant's invention that GPS satellite signals were susceptible to errors and that by utilizing a second receiver at a known location, position corrections could be generated for an unknown position or a mobile unit. The publication by Harris et al. describe basic concepts relative to differential GPS wherein satellite data for a mobile unit is corrected via wireless transmission from a known stationary location (see page 6 and Figure 3). Since the position determining means of Germain already suggests the capability of wireless communication to a known stationary position, i.e. the club house (col. 14, lines 35-41), one of ordinary skill in the art would have found it obvious to locate the secondary GPS receiver at the club house and transmit the

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correction information to the portable device on the golf course.

C. Thus, it would have been obvious to one of ordinary skill in the art, at the time of invention, to provide a secondary GPS receiver at the club house in order to provide correction signals to the portable unit because it was well known that differential GPS provided more accurate position data than a single receiver such as disclosed by Germain.

14. Claims 1 and 4, as best interpreted given the 112/2 deficiencies noted above, are rejected under 35 U.S.C. § 103 as being unpatentable over Barber (5,245,537) in view of Kozikaro (5,058,023).

A. Barber disclose a portable golf distance tracking device as essentially shown in Figures 1, 4 and 6. The device includes a memory (16) for storing golf course geometrical and topographical data, means (12) for providing position indicating signals, a data processor (14) connected to the memory (16) and position indicating means (12) for determining the position of the device on the golf course relative to a reference coordinate system and a player interface (18,20) for data input and visual display of various golf parameters. As described in column 2, line 51 to column 3, line 5, the device can compute the distance of the golfer from any significant point on the golf course.

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The claimed invention differs from Barber in that the position indicating signals are received externally to the device rather than generated by internal sensing means. The means for generating the position signals essentially comprise a wheel revolution counter and a compass.

B. As was well known in the vehicle position determining art, dead reckoning systems utilized distance measuring means (wheel revolution counters) and orientation sensing means (compass, gyro, etc.) to determine position relative to a starting point. This information could than be correlated with map data in order to determine ones location within the operating environment. Since it was common for golfers to utilize wheeled golf bag carriers and motorized carts, one skilled in the art would have readily recognized the applicability of dead reckoning principles to position determining systems used in the sport of golf. (Note evidence supporting this premise is found in the patent to Wang et al. (col.1, lines 17-29) which was cited by applicant). Kozikaro describes an example of a typical dead reckoning system known in the art (note Fig. 10). See also column 2, line 53 to column 3, line 5. It would have been obvious to one of ordinary skill in the art, at the time of invention, to alternatively determine the position of the tracking device, when mounted to a wheeled carrier, using

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dead reckoning principles because they readily lent themselves to determining position of a vehicle, or other wheel supported means, relative to a map of an operating environment.


15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michael Zanelli** whose telephone number is (703) 305-9756.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3800.

Fax communications can be received at (703) 305-9564, 9565. It is suggested that examiner be informed prior to transmission.

/mjz  
8/31/94

  
**MICHAEL ZANELLI**  
**PATENT EXAMINER**  
**ART UNIT 234**